

REMARKS

This is a response to the Office Action dated December 13, 2005.

In the outstanding Office Action the Examiner withdrew claims 7-11 from consideration. Claims 1-6 were rejected under 35 U.S.C. § 103 over United States Patent No. 5,706,833 to *Tsugaya et al.* in view of United States Patent No. 5,927,287 to *Matsumura et al.*, and in view of "Applicant's Admitted Prior Art," which consists of passages from the pending application. Additionally, claim 4 was rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

The claims have been amended to more clearly distinguish the art of record. Additionally, new claims 12-22 have been added by amendment. As amended, all claims are believed to be in condition for allowance, particularly in view of the attached *Declaration of Paul Scott*.

The amendments to claim 1 are supported in the application as originally filed at page 7, lines 6-7. New claim 12 is supported in the application as originally filed at page 6, lines 3-23; page 7, lines 6-7; and page 8, Table 1. *Note*, that the amount of water insoluble polymer in the binder is derived by subtracting the weight of the stabilizing agent from the binder. Claim 13 is supported at page 5, lines 18-23 and page 8, lines 13-19. Claim 14 is supported in the application as originally filed at page 7, lines 1-9. Claims 15 and 16 find support in the application as filed at page 5, lines 18-27 and from original claim 1. Claim 17 is supported in the application as originally filed at page 6, lines 3-22. Claim 18 is supported on page 6, lines 3-22; page 7, lines 1-7, and original claim 1. Claim 19 finds support in the application as file at page 5, line 11. Claims 20-22 are supported in the application as filed at page 6 line 3, through page 7, line 6. Claim 23 finds support at page 7, lines 7-10.

The present invention relates to a method for making a nonwoven web for cigarette filters, where the fibers are contacted with an aqueous polymeric binder having at least one polymer and at least one stabilizing agent. The filters provided according to the present invention have good strength values, exhibit low amounts of dust inhalants, and are compliant with pertinent regulatory requirements. As described in the pending application, the binder

composition used in the nonwoven web includes a polymer composition and a stabilizing agent. The stabilizing agent is used to stabilize an aqueous dispersion of the polymer composition during polymerization, as is useful in emulsion and suspension polymerization processes. *See*, application as originally filed at p. 5, lines 17-22. As recited in amended claim 1, the stabilizing agent is usually present in amounts of from 1 to 15 parts per hundred weight monomer. The stabilizer is typically a protective colloid, such as a high molecular weight polyvinyl alcohol.

The present invention is clearly distinguishable over the art of record because neither the *Tsugaya et al.* nor the *Matsumura et al.* reference discloses a binder composition with a stabilizing agent. On this point, the Examiner stated:

While the above water-soluble polymer is not characterized by *Tsugaya et al.* to function as a "stabilizing agent", the water-soluble polymer suggested by *Tsugaya et al.* must naturally have a stabilizing property since the polymer is basically identical to Applicant's stabilizing agents such as the one recited in claims 5-6.

However, the phrase "stabilizing agent," in the pending claim should not be interpreted so arbitrarily. Rather, the phrase should be given due weight in the context of the claims and specification of the application, as well as the general meaning in the art; accordingly, it is apparent that the phrase "stabilizing agent" in the pending claims relates to a compound that stabilizes a dispersion of the polymer composition during polymerization. *See, e.g.*, application as filed at page 5, lines 14-27; *See, also, Declaration* at paragraph 6. The amendment to claim 1 further clarifies the relationship between the stabilizer and the polymer composition by reciting that the binder composition includes 1 to 15 parts per hundred weight monomer (pphm) of stabilizer, based on the weight of the other polymer(s) (generally corresponding to about 1-13 wt. % of the binder composition on a dry basis).

While *Tsugaya et al.* discloses the use of polymers which *may* be used as stabilizing agents under certain conditions, *e.g.*, polyvinyl alcohol, it is abundantly clear that those polymers are not acting as stabilizing agents in the *Tsugaya et al.* binders. For example, the "water soluble polymers" in *Tsugaya et al.* are present in predominant amounts. As stated in column 9:

of the filter tends to decrease. The ratio of the water-soluble polymer to the non-soluble polymer can be selected within the range not adversely affecting the water-disintegratability of the filter and may for example be generally about 60-99/40-1 (w/w) and preferably about 70-100/30-5 (w/w).

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col. 9, lines 15-20 of *Tsugaya et al.* As can be seen from the above passage, there is significantly more water soluble polymer than non-water soluble polymer. This is not at all suggestive of the stabilizing agent recited in claim 1 which is only present in an amount of from about 1 to 15 pphm based on the monomer content of the other polymers. The foregoing points are underscored by the attached *Declaration*, at paragraph 7 where it is noted that stabilizing agents are present in minor amounts, and the resins in *Tsugaya et al.* do not act as stabilizing agents.

Additionally, it is noted that the amount of water soluble polymers in the binder composition is an integral part of the *Tsugaya et al.* reference, being operative to give the webs water dispersibility. As stated in column 8 of *Tsugaya et al.*:

- 45 The water-soluble polymer can be used in combination with a water-insoluble (non-water-soluble) polymer within the range not adversely affecting the disintegratability of the filter. Thus, when a binder made exclusively of the water-soluble polymer is used, fairly rapid disintegration occurs on
- 50 contact with water but if the filter is wetted by rain water, for instance, it may deform easily. When the water-soluble polymer and a water-insoluble polymer are used in combination, the shape of the filter is well retained without causing any appreciable decrease in water-disintegratability.
- 55 The water-insoluble polymer may be used in the form of a solution or dispersion but when the water-insoluble polymer is used in such a form, the water-disintegratability tends to decrease even at a low addition level. Moreover, when a

Thus, the purpose of the *Tsugaya et al.* reference is to provide water disintegratable webs which require a majority portion of water soluble polymer. This is in stark contrast to the present invention where the water soluble polymer is used as a stabilizing agent in minor amounts. See, *Declaration* at paragraph 8, noting that webs made according to the present invention are generally non-disintegratable in water. If the water soluble polymers in *Tsugaya et al.* were used

as stabilizing agents, they would be present in much smaller amounts—resulting in a significant decline in the water disintegratability of the web. *Note*, that where the proposed modification changes the principle under which the reference operates, the rejection is improper. *See*, MPEP § 2143.01, last subheading.

The '287 *Matsumura et al.* reference similarly does not disclose the use of a stabilizing agent in the binder composition. Like the *Tsugaya et al.* patent, the '287 *Matsumura et al.* reference teaches to use water soluble polymers such as polyvinyl alcohol, but not as stabilizing agents. *See*, col. 8, lines 54-64. Here again, these resins are provided when it is desired that the web is water disintegratable; thus, it does not suggest a stabilizing agent which is present in amounts of from 1 to 15 pphm. *See, also*, the attached *Declaration* at paragraphs 7 and 8, where it is noted that the *Matsumura et al.* reference similarly does not teach to use stabilizing agents in the binder composition.

To support a *prima facie* case of obviousness, the teachings or knowledge of the prior art must support each element of each claim. *See, In re Thrift*, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). Where the art fails to suggest significant aspects of the claims, as here, the claims should be allowed.

The new claims are believed independently patentable. Claim 12 is patentable over the art of record because it recites that the binder composition contains from about 87 to about 99 wt. percent of a water insoluble polymer (dry basis); thus, further distinguishing references such as *Tsugaya et al.* and *Matsumura et al.* which employ primarily water soluble polymers.

Claim 13 is directed to a binder having a stabilizing agent that consists of protective colloids. Similarly, claim 14 recites that the binder composition is substantially free of surfactants. These claims reflect a significant improvement, because an effective emulsion or suspension binder can be provided to cigarette filters without including unwanted surfactants. *See, Declaration* at paragraph 9. Claims 13 and 14 are likewise not suggested by the art of record.

Independent claims 15 and 18 are, perhaps, most patentable because they recite that the binder composition *consists essentially* of water, a polymer composition, and a protective colloid. Thus, items which affect the basic and novel characteristics of the invention are excluded from the compositions, such as harmful surfactants. Claim 18 also recites that the polymer is water insoluble; thus, large amounts of water soluble polymers (as are present in *Tsugaya et al.* binders) would be excluded from the composition. *See, also, Declaration* at paragraph 9.

Claim 15 is also patentable over the art of record because it explicitly defines the role of the protective colloid. For example, it recites that the binder includes a synthetic polymer which is dispersed in water and is prepared by either emulsion polymerization, inverse emulsion polymerization, or suspension polymerization. As recited in claim 15, the stabilizing agent is operative to stabilize the dispersion; this is clearly distinguished from references such as *Tsugaya et al.* and *Matsumura et al.* where the water soluble polymer is added only to provide the cigarette filter with water-disintegratability, and is present in too large amounts to act as a stabilizer. In any event, the art of record does not disclose a polymer composition that is produced according to the methods recited in claim 15. *Declaration* at paragraph 8.

Claims 20-23 are directed to a cigarette filter having a polymer binder with a solids content that consists essentially of a polymer composition and a protective colloid stabilizing agent. Again, the art of record does not suggest a cigarette filter with a protective colloid stabilized polymer.

Turning to the section 112 rejection, the Examiner rejected claim 4, stating that claim 4 somewhat broadens claim 3 because it includes a *Markush* group that recites "ethylene," while claim 3 does not include ethylene. Applicant respectfully submits that claim 4 is definite and properly limits the scope of claim 3 from which it depends. Claim 4 simply defines various monomers from which the polymers of claim 3 are made. We note that claim 3 recites ethylene/vinyl acetate copolymers; thus, the recitation of ethylene monomers, is not believed to expand the scope of claim 3.

All claims should be allowed, for the reasons discussed above.

This response is being believed timely filed. If any additional extensions are required, please consider this paper a *Petition* thereof and charge our Deposit Account No. 50-0935.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'A. Webb', with a stylized flourish at the end.

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